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TITLE

COLLAPSIBLE KEYBOARD

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates in general to a collapsible keyboard that can be folded into a reduced size, facilitating transport.

Description of the Related Art

Generally, characters and symbols are input into a computer via a keyboard. Other input equipment such as mouse pointers or light pens fail to offer input speed and ease to match the keyboard. Therefore, the popularity of keyboards remains universal.

A conventional keyboard has a keyboard base, a key base and a plurality of keys. The key base is mounted on the keyboard base, while the keys are mounted on the key base. The user inputs data into the computer by typing the keys of the keyboard. Operation of the computer using the keyboard is easy and fast. Conventional keyboards are, however, too long to allow easy transport.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a collapsible keyboard that can be folded into a reduced size, facilitating transport.

The keyboard of the present invention includes a keyboard base, at least one hinge, a key base, at least one fixed hinge, at least one movable hinge and a plurality of keys. The keyboard

base has a plurality of first sections. The hinge connects the plurality of first sections so that the first sections are rotatable with respect to each other. The key base has a plurality of second sections provided on the first sections. The fixed hinge connects the second hinges so that the second sections are rotatable with respect to each other. The movable hinge connects one of the first sections and one of the second sections. The keys are provided on the second sections.

The keyboard in use has a longitudinal size equal to that of a conventional keyboard to comply with user habits. When the keyboard is not in use, the user can fold the keyboard so that the keyboard has a reduced size and easily carried.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention can be more fully understood by reading the subsequent detailed description and examples with references made to the accompanying drawings, wherein:

Fig. 1 is a front view of a collapsible keyboard in accordance with a first embodiment of the present invention;

Fig. 2 depicts the collapsible keyboard of the first embodiment in a folding operation;

Fig. 3 is a local enlarged view of Fig. 1;

Fig. 4 is a local enlarged view of Fig. 2;

Fig. 5 is another local enlarged view of Fig. 2;

Fig. 6 depicts the collapsible keyboard of the first embodiment of the present invention, folded into a reduced size;

Fig. 7 is a front view of a collapsible keyboard in accordance with a second embodiment of the present invention;

Fig. 8 depicts the collapsible keyboard of the second embodiment of the present invention, folded into a reduced size;

Fig. 9 is a front view of a collapsible keyboard in accordance with a third embodiment of the present invention;

Fig. 10 depicts the collapsible keyboard of the third embodiment in a folding operation;

Fig. 11 is a local enlarged view of Fig. 10;

Fig. 12 is another local enlarged view of Fig. 10;

Fig. 13 depicts the connecting rod of Fig. 12;

Fig. 14 depicts the collapsible keyboard of the third embodiment of the present invention, folded into a reduced size;

Fig. 15 is a front view of a collapsible keyboard in accordance with a fourth embodiment of the present invention;

Fig. 16 depicts the collapsible keyboard of the fourth embodiment of the present invention, folded into a reduced size;

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figs. 1 and 2, a collapsible keyboard of a first embodiment of the present invention includes a keyboard base, a key base mounted on the keyboard base and a plurality of keys mounted on the key base. The keyboard base has a plurality of sections 11, 12, 13, 14, 15, 16 connected by hinges, while the key base has a plurality of sections 21, 23, 24, 26 also connected by hinges. The keyboard can be folded via the hinges, and the detail is introduced later. The keys 31, 33, 34, 36 are mounted on the sections 21, 23, 24, 26 of the key base. The user types the keys to output corresponding signals to a computer (not shown).

Now referring to Fig. 3, the sections 13, 14 of the keyboard base are connected by a hinge 41 so that the keyboard can be folded in the middle. Also, the sections 23, 24 of the key base

are fixed to the sections 13, 14 of the keyboard base, respectively.

It is noted that the keyboard of the present invention has two halves, which are the same (symmetrical). For easy description, only the right half of the keyboard is introduced. Referring back to Fig. 2, the section 26 has an end connected to a fixed hinge 40 (Fig. 4) and the other end connected to a movable hinge 45 (Fig. 5). Referring to Fig. 4, the sections 14, 15 of the keyboard base are connected via a hinge 48. The section 24 of the key base is fixed to the section 14 of the keyboard base, while the section 26 of the key base is put on the section 15 of the keyboard base. The sections 24, 26 of the key base are connected via the hinge 40. The hinge 40 includes two connecting rods 43, 44 and a pivot 42. The connecting rods 43, 44 raise the pivot 42 to avoid contact between the keys 34, 36 when the keyboard is folded. Referring to Fig. 5, the section 16 of the keyboard base has a groove 18 to receive the movable hinge 45. The movable hinge 45 connects the section 26 of the key base and the section 16 of the keyboard base. When the keyboard is folded, the hinge 45 moves in the groove 18.

When the keyboard is in use, the keyboard is open and has a longitudinal size equal to that of a conventional keyboard to comply with user habits, as shown in Fig. 1. To fold the keyboard, the user simultaneously rotates the keyboard in directions A, B, C, D until the sections of the keyboard base contact with each other. As shown in Fig. 6, the longitudinal size of the keyboard is reduced by 75%. It is thus convenient for the user to carry the folded keyboard.

Referring to Fig. 7, a collapsible keyboard of a second embodiment of the present invention includes a keyboard base,

a key base mounted on the keyboard base and a plurality of keys mounted on the key base. The keyboard base has a plurality of sections 14', 15', 16' connected by hinges, while the key base has a plurality of sections 24', 26' connected by other hinges so that the keyboard can be folded. The keys 34', 36' are mounted on the sections 24', 26' of the key base. The user types the keys to output corresponding signals to a computer (not shown). It is noted that the keyboard of the second embodiment is exactly the same as the right half of the keyboard of the first embodiment. Referring to Fig. 8, the longitudinal size of the keyboard is reduced by 50% when the keyboard is folded.

In the first and second embodiments, the section 26 or 26' of the key base has an end connected to a fixed hinge and the other end connected to a movable hinge. As well, both ends of the section 26 or 26' are connected to movable hinges. Referring to Figs. 9 and 10, a collapsible keyboard of a third embodiment of the present invention includes a keyboard base, a key base mounted on the keyboard base and a plurality of keys mounted on the key base. The keyboard base has a plurality of sections 51, 52, 53, 54, 55, 56 connected by hinges 91, 92, 93, 94, 95. The key base has a plurality of sections 61, 63, 64, 66, with the keys 71, 73, 74, 76 mounted thereon. The middle sections 63, 64 of the key base are fixed on the sections 53, 54 of the keyboard base. The left section 61 of the key base is put on the sections 51, 52 of the keyboard base. The right section 66 of the key base is put on the sections 55, 56 of the keyboard base. The keyboard of the third embodiment is symmetrical. For easy description, only the right half of the keyboard is introduced. The sections 54, 56 of the keyboard base have grooves 83, 84 thereon, while both ends of the section 66 of the key base are

connected to movable hinges 97, 98. Referring to Fig. 11, the movable hinge 98 is disposed in the groove 84 to connect the section 66 of the key base and the section 56 of the keyboard base. When the keyboard is folded, the hinge 98 moves in the groove 84. Referring to Fig. 12, the movable hinge 97 includes a connecting rod 972 and two pivots 971, 973. The pivot 971 is movably disposed in the groove 83, while the pivot 973 pivots the connecting rod 972 to the section 66 of the key base. Referring to Fig. 13, the pivot 973 has a gap 974 so that the pivot 973 can be compressed and fitted into the section 66 of the key base. Then, the connecting rod 972 is rotatable with respect to the section 66 of the key base and the section 54 of the keyboard base.

To fold the keyboard, the user simultaneously rotates the keyboard in directions A, B, C, D until the sections of the key base and keyboard base contact with each other. As shown in Fig. 14, the longitudinal size of the keyboard is reduced by 75%. It is convenient for the user to carry the folded keyboard.

It is understood that the pivots 971 and 973 can be replaced with each other. That is, the pivot 973 having the gap 974 is disposed in the groove 83, and the pivot 971 is connected to the section 66 of the key base. Such an arrangement also works.

Referring to Fig. 15, a collapsible keyboard of a fourth embodiment of the present invention includes a keyboard base, a key base mounted on the keyboard base and a plurality of keys mounted on the key base. The keyboard base has a plurality of sections 54', 55', 56' connected by hinges, while the key base has a plurality of sections 64', 66' connected by other hinges so that the keyboard can be folded. The keys 74', 76' are mounted on the sections 64', 66' of the key base. The user types the

keys to output corresponding signals to a computer (not shown). It is noted that the keyboard of the fourth embodiment is exactly the same as the right half of the keyboard of the third embodiment. Referring to Fig. 16, the longitudinal size of the keyboard is reduced by 50% when the keyboard is folded.

In conclusion, the present invention provides a collapsible keyboard. The keyboard in use has a longitudinal size equal to that of a conventional keyboard to comply with user habits. When the keyboard is not in use, the user can fold the keyboard so that the keyboard has a reduced size and is easily carried.

While the invention has been described by way of example and in terms of the preferred embodiment, it is to be understood that the invention is not limited to the disclosed embodiments. To the contrary, it is intended to cover various modifications and similar arrangements (as would be apparent to those skilled in the art). Therefore, the scope of the appended claims should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements.